

Marco MARANGONI

Curriculum Vitae

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Affiliation: Dipartimento di Fisica – Politecnico di Milano
and Istituto di Fotonica e Nanotecnologie del CNR

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Education

- February 1999 **Ph D in Electronic and Communication Engineering**
Thesis: "Optical waveguides in lithium niobate for second harmonic generation: modelling, characterization and nonlinear measurements".
Advisor: Prof. Gianpiero Banfi
- April 1995 **Laurea degree (M.Sc)** in Electronic Engineering with grade 100/100 *cum laude* at Politecnico di Milano.
Thesis: "Theoretical and experimental study of the Cerenkov and guided second harmonic in lithium niobate waveguides".
Advisor: Prof. Vera Russo

Research experience

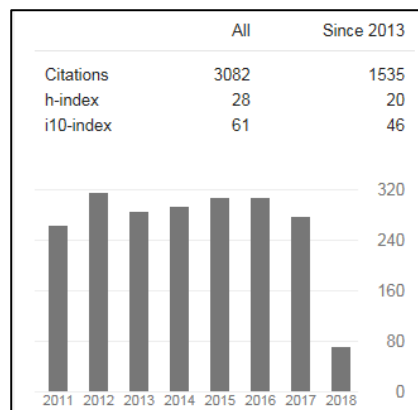
- 2011 - Present **Associate Professor in Physics**
Department of Physics - Politecnico di Milano
- Head of the research group on Comb-Assisted Molecular spectroscopy
- 2001 - 2010 **Staff Researcher**
Department of Physics - Politecnico di Milano
- 1999 – 2001 **Post-Doctoral Fellow**
Department of Physics - Politecnico di Milano
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Awards and Honors

- 2015 Head of the Unit Research in Lecco of the Photonics and Nanotechnology Institute (IFN) of the National Research Council (CNR)
- 2012 Habilitation as Full Professor in the topic 02/B1 – Experimental Physics of Matter
- 2007 Winner of an internal competition at Politecnico di Milano for the starting up of a new research activity in the campus of Lecco
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Bibliometric data

h-index	No.
Web of Science	24
Scopus	25
Google Scholar	28



Source: Google Scholar March 8th 2018

Articles in peer reviewed journals	97
Book chapters	10
Invited presentations at international conferences	7
Accepted presentations at international conferences	119
Patents	3

Committees and Editorial activities

- 2016 Director of the 2016 Winter School on Optical Frequency Combs organized by the International Centre for Theoretical Physics (ICTP) in Trieste (February 15th-26th)
- 2015-18 Member of the Optical Metrology Subcommittee for Conference on Lasers and Electro-Optics (Cleo).
- 2014-18 Member of the Solid-State-Laser Subcommittee for the Europhoton Conference.
- 2017 External Member in the Committee for assigning the PhD title in Physics to Maria Carmela Cardilli, Angelo Sampaolo, Annalisa Volpe dell'Università degli Studi di Bari (Italy)
- 2015 External Member in the Committee for assigning the PhD title in Physics to Johannes Burkart at the Université de Grenoble (France)

2014 External Member in the Committee for assigning the PhD title in Physics to Lucile Rutkowski at Université Claude Bernard Lyon (France)

2012 External Member in the Committee for assigning the PhD title in Applied Physics to Chadi Abd Alrahman at the Université de Grenoble (France)

Grants and Research projects

<i>Years</i>	<i>Project</i>	<i>Role</i>
2016-2018	Progetto Emblematico, Regione Lombardia – Fondazione Cariplo Frequency-comb-calibrated cavity-Enhanced Absorption Spectroscopy at high Temperatures for combustion-relevant gases (EMPATIA)	Unit coordinator
2017-2018	Accordo quadro Regione Lombardia – CNR Future Home for Future Communities (FHfFC)	Unit coordinator
2016-2018	Collaborative project with KAUST Frequency-comb-calibrated cavity-Enhanced Absorption Spectroscopy at high Temperatures for combustion-relevant gases (FEAST)	Unit coordinator
2013-2015	Regional project from Fondazione Cariplo Surface-enhanced Coherent Antistokes Raman Scattering for label-free ultra-sensitive detection	Project Coordinator
2012-2014	National FIRB project Cold fluoromethane molecules for ultra-high-resolution ro-vibrational spectroscopy assisted by comb synthesizers: laboratory test of the constancy of the proton-to-electron mass ratio	Team member
2011-2012	Regional project from Lombardia Sviluppo di un sistema di spettroscopia Raman Coerente per imaging biomedicale	Project Coordinator
2010-2012	European FET-OPEN project Coherently-enhanced Raman One-beam Standoff Spectroscopic TRacing of Airborne Pollutants" (CROSS-TRAP)	Work-Package Leader
2010-2011	Regional project from Fondazione banca del monte di Lombardia Microscopia vibrazionale coerente per la medicina e le biotecnologie	Project Coordinator
2007-2009	Internal project from Politecnico di Milano Comb-assisted molecular spectroscopy	Project Coordinator
2006-2007	National PRIN project Controllo spettrale e temporale di impulsi a femtosecondi mediante processi non lineari del II ordine	Team member
2003-2006	National FIRB project Sistemi miniaturizzati per elettronica e fotonica	Team member
1999-2000	National PRIN project Frequency conversion and amplification of optical signals in waveguiding structures by cascaded second order nonlinear processes	Team member
1998-2001	National MADESS project Progettazione di maschere per l'inversione dei domini nei materiali ferroelettrici",	Team member

Teaching experience

2005 - Present	Thesis supervisor 6 PhD students 8 Master students 20 undergraduate students
2010 - Present	Associate Professor at Politecnico di Milano 2017-2018 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2016-2017 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2015-2016 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2014-2015 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2013-2014 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2012-2013 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2011-2012 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2010-2011 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science)
1998 - 2010	Contract Professor at Politecnico di Milano 2009-2010 Experimental Physics A + B (10 credits) Micro and Nano-optics (5 credits – Master of Science) 2008-2009 Experimental Physics A + B (10 credits) 2007-2008 Experimental Physics A + B (10 credits) 2006-2007 Experimental Physics A + B (10 credits) 2005-2006 Experimental Physics A + B (10 credits) 2004-2005 Experimental Physics A + B (10 credits) 2003-2004 Experimental Physics A + B (10 credits) 2002-2003 Experimental Physics A + B (10 credits) 2001-2002 Experimental Physics A + B (10 credits) 2000-2001 Experimental Physics A + B (10 credits) 1998-1999 General Physics at Diploma students (10 credits)
1997 - 2008	Teaching assistant at Politecnico di Milano 2007-2008 Laser Applications (5 credits) 2006-2007 Laser Applications (5 credits) 2005-2006 Laser Applications (5 credits) 2004-2005 Laser Applications (5 credits) 2003-2004 Optical Technologies (5 credits) 2001-2002 General Physics II (10 credits) 2000-2001 General Physics II (10 credits) 1999-2000 General Physics II (10 credits) General Physics at Diploma students (10 credits) 1998-1999 General Physics II (10 credits) 1997-1998 General Physics II (10 credits) General Physics at Diploma students (10 credits)
2000-2008	Experimental teaching assistant for courses of Experimental Physics, Integrated Optics, Micro and Nano-optics, Optical Technologies

Research interests

<i>High-precision molecular spectroscopy</i>	Highly accurate spectroscopic investigation of molecular gas samples, in the near- and mid-infrared, through the use of optical frequency combs in combination with semiconductor and quantum-cascade lasers
<i>Trace gas detection</i>	Development of cavity-enhanced comb-assisted spectrometers for trace gas detection, investigation of weakly absorbing species, ultra-precise determination of line-centre frequencies in sub-Doppler regime
<i>Optical frequency combs synthesizers</i>	Synthesis of optical frequency combs with wide tunability in the mid-infrared spectral region through difference frequency generation and optical parametric oscillation
<i>Coherent Raman microscopy</i>	Development of novel fiber-format systems for Coherent Raman microscopy in a variety of regimes: Coherent-Antistokes Raman Scattering, Stimulated Raman Scattering, Raman-Induced Kerr Effect
<i>Ultrafast II order nonlinear processes</i>	Experimental study of II order nonlinear processes in the ultrafast regime: temporal compression, group-velocity control, spectral compression, parametric generation and amplification
<i>Quantum – Optical analogies</i>	Fabrication of photonic model systems to investigate and visualize ‘hard-to-observe’ quantum phenomena with classical light in photonic circuits
<i>All-optical guided devices</i>	Design, fabrication and characterization of nonlinear optical waveguides realized by proton-exchange in periodically-poled lithium-niobate and tantalite for all-optical processing of telecom signals
<i>Optical waveguides characterization</i>	Development of techniques for highly accurate determination of losses and refractive index profiles of both surface and buried waveguides, exploiting both guided and radiation modes

Invited Presentations at Conferences

1. [M. Marangoni](#), "Broadband stimulated Raman scattering microscopy", Marseille Multiphoton Microscopy conference, Marseille, November 29-30, 2017
 2. [M. Marangoni](#), "Frequency comb calibrated spectroscopy in the mid-infrared", Tunable Diode Laser Spectroscopy International Conference, Moscow, July 5-9, 2015.
 3. [M. Marangoni](#), "Precision mid-infrared frequency combs and spectroscopic applications", LASE LA106 conference at Photonics West, San Francisco, February 2-7, 2013.
 4. [M. Marangoni](#), "Absolute Frequency Spectroscopy in the Mid-Infrared Region Through a Comb-Referenced Quantum-Cascade-Laser", Tunable Diode Laser Spectroscopy International Conference, Zermatt, June 11-15, 2011.
 5. [M. Marangoni](#) and G. Cerullo, "Coherent Raman Spectroscopy with a Fiber-Format Femtosecond Laser Oscillator", MicroCARS workshop, Bad-Honnef, October 14-16, 2010.
 6. [M. Marangoni](#) and G. Cerullo, "Coherent Raman Spectroscopy with a Fiber-Format Femtosecond Laser Oscillator", International Conference on Raman Spectroscopy (ICORS), Boston, August 7-12, 2010.
 7. [M. Marangoni](#), "Tunable frequency combs in the fingerprint region from a compact erbium-doped fiber oscillator", Mid Infrared Coherent Sources (MICS) conference, Trouville, June 8-12, 2009.
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Patents

1. M. E. Fermann, M. Marangoni, F. Gatti, "Methods for precision optical frequency synthesis and molecular detection", WO2013148757 A1.
 2. G. Cerullo, M. Marangoni, C. De Angelis, M. Conforti, F. Baronio, "System for generating Raman vibrational analysis signals", US 20110128538 A1.
 3. R. Osellame, R. Ramponi, M. Marangoni, "Reconfigurable optical device for wavelength division multiplexing networks", US 20050047712 A1.
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List of publications in peer-reviewed journals

1. R. Gotti, M. Prevedelli, S. Kassi, M. Marangoni, and D. Romanini, "Feed-forward coherent link from a comb to a diode laser: Application to widely tunable cavity ring-down spectroscopy", *Journal of Chemical Physics* **148**, 054202 (2018).
2. R. Gotti, L. Moretti, D. Gatti, A. Castrillo, G. Galzerano, P. Laporta, L. Gianfrani, and M. Marangoni, "Cavity-ring-down Doppler-broadening primary thermometry", *Physical Review A* **97**, 012512 (2018).
3. M. Lamperti, B. Alsaif, D. Gatti, M. Fermann, P. Laporta, A. Farooq, M. Marangoni, "Absolute spectroscopy near 7.8 μm with a comb-locked extended-cavity quantum-cascade-laser", *Scientific Reports* **8**, 1292 (2018).
4. F. Crisafi, V. Kumar, A. Perri, M. Marangoni, G. Cerullo, and D. Polli, "Multimodal nonlinear microscope based on a compact fiber-format laser source", *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* **188**, 135-140 (2018).
5. N. Coluccelli, D. Viola, V. Kumar, A. Perri, M. Marangoni, G. Cerullo, and D. Polli, "Tunable 30 fs light pulses at 1 W power level from a Yb-pumped optical parametric oscillator", *Optics Letters* **42**, 4545-4548 (2017).
6. R. Gotti, D. Gatti, P. Masłowski, M. Lamperti, M. Belmonte, P. Laporta, and M. Marangoni, "Conjugating precision and acquisition time in a Doppler broadening regime by interleaved frequency-agile rapid-scanning cavity ring-down spectroscopy", *Journal of Chemical Physics* **147**, 134201 (2017).
7. F. Crisafi, V. Kumar, T. Scopigno, M. Marangoni, G. Cerullo, and D. Polli, "In-line balanced detection stimulated Raman scattering microscopy", *Scientific Reports* **7**, 10745 (2017).
8. T. Steinle, V. Kumar, M. Floess, A. Steinmann, M. Marangoni, C. Koch, C. Wege, G. Cerullo, and Harald Giessen, "Synchronization-free all-solid-state laser system for stimulated Raman scattering microscopy", *Light: Science & Applications* **5**, e16149 (2016).
9. C Rinaldi, S Bertoli, M Asa, L Baldrati, C Manzoni, M Marangoni, G Cerullo, M Bianchi, R Sordan, R Bertacco, and M Cantoni, "Determination of the spin diffusion length in germanium by spin optical orientation and electrical spin injection", *Journal of Physics D* **49**, 425104 (2016).
10. D. Gatti, R. Gotti, A. Gambetta, M. Belmonte, G. Galzerano, P. Laporta, M. Marangoni, "Comb-locked Lamb-dip spectrometer", *Scientific Reports* **6**, 27183 (2016).
11. D. Gatti, R. Gotti, T. Sala, N. Coluccelli, M. Belmonte, M. Prevedelli, P. Laporta, and M. Marangoni, "Wide-bandwidth Pound–Drever–Hall locking through a single-sideband modulator," *Optics Letters* **40**, 5176-5179 (2015).
12. J. Réhault, F. Crisafi, V. Kumar, G. Ciardi, M. Marangoni, G. Cerullo, and D. Polli, "Broadband stimulated Raman scattering with Fourier-transform detection," *Opt. Express* **23**, 25235-25246 (2015).
13. T. Steinle, V. Kumar, A. Steinmann, M. Marangoni, G. Cerullo, and H. Giessen, "Compact, low-noise, all-solid-state laser system for stimulated Raman scattering microscopy," *Optics Letters* **40**, 593-596 (2015).

14. M. Zavelani-Rossi, D. Polli, S. Kochtcheev, A.-L. Baudrion, J. Beal, V. Kumar, E. Molotokaite, M. Marangoni, S. Longhi, G. Cerullo, P.-M. Adam, and G. Della Valle, "Transient Optical Response of a Single Gold Nanoantenna: The Role of Plasmon Detuning," *Acs Photonics* **2**, 521-529 (2015).
15. D. Mondelain, T. Sala, S. Kassi, D. Romanini, M. Marangoni, and A. Campargue, "Broadband and highly sensitive comb-assisted cavity ring down spectroscopy of CO near 1.57 μm with sub-MHz frequency accuracy," *Journal of Quantitative Spectroscopy & Radiative Transfer* **154**, 35-43 (2015).
16. D. Gatti, T. Sala, R. Gotti, L. Cocola, L. Poletto, M. Prevedelli, P. Laporta, and M. Marangoni, "Comb-locked cavity ring-down spectrometer," *Journal of Chemical Physics* **142** (2015).
17. J. Burkart, T. Sala, D. Romanini, M. Marangoni, A. Campargue, and S. Kassi, "Saturated CO₂ absorption near 1.6 μm for kilohertz-accuracy transition frequencies," *Journal of Chemical Physics* **142** (2015).
18. A. Gambetta, M. Cassinerio, N. Coluccelli, E. Fasci, A. Castrillo, L. Gianfrani, D. Gatti, M. Marangoni, P. Laporta, and G. Galzerano, "Direct phase-locking of a 8.6- μm quantum cascade laser to a mid-IR optical frequency comb: application to precision spectroscopy of N₂O," *Optics Letters* **40**, 304-307 (2015).
19. J. Burkart, T. Sala, S. Kassi, D. Romanini, and M. Marangoni, "Optical phase cloning by an integrated dual-parallel Mach-Zehnder modulator," *Optics Letters* **40**, 816-819 (2015).
20. V. Kumar, N. Coluccelli, M. Cassinerio, M. Celebrano, A. Nunn, M. Levrero, T. Scopigno, G. Cerullo, and M. Marangoni, "Low-noise, vibrational phase-sensitive chemical imaging by balanced detection RIKE," *Journal of Raman Spectroscopy* **46**, 109-116 (2015).
21. P. N. Malevich, R. Maurer, D. Kartashov, S. Alisauskas, A. A. Lanin, A. M. Zheltikov, M. Marangoni, G. Cerullo, A. Baltuska, and A. Pugzlys, "Stimulated Raman gas sensing by backward UV lasing from a femtosecond filament," *Optics Letters* **40**, 2469-2472 (2015).
22. N. Coluccelli, V. Kumar, M. Cassinerio, G. Galzerano, M. Marangoni, and G. Cerullo, "Er/Tm: fiber laser system for coherent Raman microscopy," *Optics Letters* **39**, 3090-3093 (2014).
23. C. Rinaldi, M. Cantoni, M. Marangoni, C. Manzoni, G. Cerullo, and R. Bertacco, "Wide-range optical spin orientation in Ge from near-infrared to visible light," *Physical Review B* **90** (2014).
24. D. Gatti, A. A. Mills, M. D. De Vizia, C. Mohr, I. Hartl, M. Marangoni, M. Fermann, and L. Gianfrani, "Frequency-comb-calibrated Doppler broadening thermometry," *Physical Review A* **88** (2013).
25. A. Gambetta, N. Coluccelli, M. Cassinerio, D. Gatti, P. Laporta, G. Galzerano, and M. Marangoni, "Milliwatt-level frequency combs in the 8-14 μm range via difference frequency generation from an Er: fiber oscillator," *Optics Letters* **38**, 1155-1157 (2013).
26. A. Castrillo, A. Gambetta, D. Gatti, G. Galzerano, P. Laporta, M. Marangoni, and L. Gianfrani, "Absolute molecular density determinations by direct referencing of a quantum cascade laser to an optical frequency comb," *Applied Physics B-Lasers and Optics* **110**, 155-162 (2013).
27. E. Molotokaite, V. Kumar, C. Manzoni, D. Polli, G. Cerullo, and M. Marangoni, "Raman-induced Kerr effect microscopy with balanced detection," *Journal of Raman Spectroscopy* **44**, 1385-1392 (2013).
28. A. Gambetta, D. Gatti, A. Castrillo, N. Coluccelli, G. Galzerano, P. Laporta, L. Gianfrani, and M. Marangoni, "Comb-assisted spectroscopy of CO₂ absorption profiles in the near- and mid-infrared regions," *Applied Physics B-Lasers and Optics* **109**, 385-390 (2012).
29. A. Ruehl, A. Gambetta, I. Hartl, M. E. Fermann, K. S. E. Eikema, and M. Marangoni, "Widely-tunable mid-infrared frequency comb source based on difference frequency generation," *Optics Letters* **37**, 2232-2234 (2012).
30. T. Sala, D. Gatti, A. Gambetta, N. Coluccelli, G. Galzerano, P. Laporta, and M. Marangoni, "Wide-bandwidth phase lock between a CW laser and a frequency comb based on a feed-forward configuration," *Optics Letters* **37**, 2592-2594 (2012).
31. V. Kumar, M. Casella, E. Molotokaite, D. Polli, G. Cerullo, and M. Marangoni, "Coherent Raman spectroscopy with a fiber-format femtosecond oscillator," *Journal of Raman Spectroscopy* **43**, 662-667 (2012).
32. Mills, D. Gatti, J. Jiang, C. Mohr, W. Mefford, L. Gianfrani, M. Fermann, I. Hartl, and M. Marangoni, "Coherent phase lock of a 9 μm quantum cascade laser to a 2 μm thulium optical frequency comb," *Optics Letters* **37**, 4083-4085 (2012).

33. V. Kumar, M. Casella, E. Molotokaite, D. Gatti, P. Kukura, C. Manzoni, D. Polli, M. Marangoni, and G. Cerullo, "Balanced-detection Raman-induced Kerr-effect spectroscopy," *Physical Review A* **86** (2012).
34. P. N. Malevich, D. Kartashov, Z. Pu, S. Alisauskas, A. Pugzlys, A. Baltuska, L. Giniunas, R. Danielius, A. A. Lanin, A. M. Zheltikov, M. Marangoni, and G. Cerullo, "Ultrafast-laser-induced backward stimulated Raman scattering for tracing atmospheric gases," *Optics Express* **20**, 18784-18794 (2012).
35. D. Gatti, T. Sala, A. Gambetta, N. Coluccelli, G. N. Conti, G. Galzerano, P. Laporta, and M. Marangoni, "Analysis of the feed-forward method for the referencing of a CW laser to a frequency comb," *Optics Express* **20**, 24880-24885 (2012).
36. N. Coluccelli, H. Fonnum, M. Haakestad, A. Gambetta, D. Gatti, M. Marangoni, P. Laporta, and G. Galzerano, "250-MHz synchronously pumped optical parametric oscillator at 2.25-2.6 μm and 4.1-4.9 μm ," *Optics Express* **20**, 22042-22047 (2012).
37. N. Coluccelli, A. Gambetta, T. Sala, D. Gatti, M. Marangoni, P. Laporta, and G. Galzerano, "Frequency-stabilized 1 W optical comb at 2.2-2.6 μm by Cr²⁺:ZnSe multipass amplification," *Optics Letters* **37**, 4440-4442 (2012).
38. N. Coluccelli, A. Gambetta, D. Gatti, M. Marangoni, A. Di Lieto, M. Tonelli, G. Galzerano, and P. Laporta, "1.6-W self-referenced frequency comb at 2.06 μm using a Ho:YLF multipass amplifier," *Optics Letters* **36**, 2299-2301 (2011).
39. M. Conforti, F. Baronio, C. De Angelis, M. Marangoni, and G. Cerullo, "Theory and experiments on multistep parametric processes in nonlinear optics," *Journal of the Optical Society of America B-Optical Physics* **28**, 892-895 (2011).
40. D. Gatti, A. Gambetta, A. Castrillo, G. Galzerano, P. Laporta, L. Gianfrani, and M. Marangoni, "High-precision molecular interrogation by direct referencing of a quantum-cascade-laser to a near-infrared frequency comb," *Optics Express* **19**, 17520-17527 (2011).
41. V. Kumar, R. Osellame, R. Ramponi, G. Cerullo, and M. Marangoni, "Background-free broadband CARS spectroscopy from a 1-MHz ytterbium laser," *Optics Express* **19**, 15143-15148 (2011).
42. D. Gatti, N. Coluccelli, A. Gambetta, A. Di Lieto, M. Tonelli, G. Galzerano, P. Laporta, and M. Marangoni, "Absolute frequency spectroscopy of CO₂ lines at around 2.09 μm by combined use of an Er: fiber comb and a Ho:YLF amplifier," *Optics Letters* **36**, 3921-3923 (2011).
43. M. Lobino, G. D. Marshall, C. Xiong, A. S. Clark, D. Bonneau, C. M. Natarajan, M. G. Tanner, R. H. Hadfield, S. N. Dorenbos, T. Zijlstra, V. Zwiller, M. Marangoni, R. Ramponi, M. G. Thompson, B. J. Eggleton, and J. L. O'Brien, "Correlated photon-pair generation in a periodically poled MgO doped stoichiometric lithium tantalate reverse proton exchanged waveguide," *Applied Physics Letters* **99** (2011).
44. G. Galzerano, A. Gambetta, E. Fasci, A. Castrillo, M. Marangoni, P. Laporta, and L. Gianfrani, "Absolute frequency measurement of a water-stabilized diode laser at 1.384 μm by means of a fiber frequency comb," *Applied Physics B-Lasers and Optics* **102**, 725-729 (2011).
45. E. Pontecorvo, S. M. Kapetanaki, M. Badioli, D. Brida, M. Marangoni, G. Cerullo, and T. Scopigno, "Femtosecond stimulated Raman spectrometer in the 320-520nm range," *Optics Express* **19**, 1107-1112 (2011).
46. A. Gambetta, D. Gatti, A. Castrillo, G. Galzerano, P. Laporta, L. Gianfrani, and M. Marangoni, "Mid-infrared quantitative spectroscopy by comb-referencing of a quantum-cascade-laser: Application to the CO₂ spectrum at 4.3 μm ," *Applied Physics Letters* **99** (2011).
47. F. Junginger, A. Sell, O. Schubert, B. Mayer, D. Brida, M. Marangoni, G. Cerullo, A. Leitenstorfer, and R. Huber, "Single-cycle multiterahertz transients with peak fields above 10 MV/cm," *Optics Letters* **35**, 2645-2647 (2010).
48. V. Kumar, A. Gambetta, C. Manzoni, R. Ramponi, G. Cerullo, and M. Marangoni, "Compact fibre-based coherent anti-Stokes Raman scattering spectroscopy and interferometric coherent anti-Stokes Raman scattering from a single femtosecond fibre-laser oscillator," *Pramana-Journal of Physics* **75**, 1129-1134 (2010).
49. A. Gambetta, V. Kumar, G. Grancini, D. Polli, R. Ramponi, G. Cerullo, and M. Marangoni, "Fiber-format stimulated-Raman-scattering microscopy from a single laser oscillator," *Optics Letters* **35**, 226-228 (2010).
50. A. Gambetta, E. Fasci, A. Castrillo, M. Marangoni, G. Galzerano, G. Casa, P. Laporta, and L. Gianfrani, "Frequency metrology in the near-infrared spectrum of (H₂O)-O-17 and (H₂O)-O-18 molecules: testing a new inversion method for retrieval of energy levels," *New Journal of Physics* **12** (2010).

51. C. Manzoni, R. Osellame, M. Marangoni, M. Schultze, U. Morgner, and G. Cerullo, "High-repetition-rate two-color pump-probe system directly pumped by a femtosecond ytterbium oscillator," *Optics Letters* **34**, 620-622 (2009).
52. M. Marangoni, D. Brida, M. Conforti, A. D. Capobianco, C. Manzoni, F. Baronio, G. F. Nalesso, C. De Angelis, R. Ramponi, and G. Cerullo, "Synthesis of picosecond pulses by spectral compression and shaping of femtosecond pulses in engineered quadratic nonlinear media," *Optics Letters* **34**, 241-243 (2009).
53. M. Marangoni, A. Gambetta, C. Manzoni, V. Kumar, R. Ramponi, and G. Cerullo, "Fiber-format CARS spectroscopy by spectral compression of femtosecond pulses from a single laser oscillator," *Optics Letters* **34**, 3262-3264 (2009).
54. D. Brida, S. Bonora, C. Manzoni, M. Marangoni, P. Villorosi, S. De Silvestri, and G. Cerullo, "Generation of 8.5-fs pulses at 1.3 μm for ultrabroadband pump-probe spectroscopy," *Optics Express* **17**, 12510-12515 (2009).
55. M. Marangoni, G. Sanna, D. Brida, M. Conforti, G. Cirmi, C. Manzoni, F. Baronio, P. Bassi, C. De Angelis, and G. Cerullo, "Observation of spectral drift in engineered quadratic nonlinear media," *Applied Physics Letters* **93** (2008).
56. D. Brida, M. Marangoni, C. Manzoni, S. De Silvestri, and G. Cerullo, "Two-optical-cycle pulses in the mid-infrared from an optical parametric amplifier," *Optics Letters* **33**, 2901-2903 (2008).
57. A. Gambetta, G. Galzerano, A. G. Rozhin, A. C. Ferrari, R. Ramponi, P. Laporta, and M. Marangoni, "Sub-100 fs two-color pump-probe spectroscopy of single wall carbon nanotubes with a 100 MHz Er-fiber laser system," *Optics Express* **16**, 11727-11734 (2008).
58. A. Gambetta, R. Ramponi, and M. Marangoni, "Mid-infrared optical combs from a compact amplified Er-doped fiber oscillator," *Optics Letters* **33**, 2671-2673 (2008).
59. M. Marangoni, M. Lobino, and R. Ramponi, "Optical parametric generation of nearly transform-limited mid-infrared pulses in dispersion-engineered nonlinear waveguides," *Optics Letters* **33**, 2107-2109 (2008).
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